# PLANT IMMIGRANTS.

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## Plates:



## Foreign Seed and Plant Introduction.

# EXPLANATORY NOTE.

This circular is made up largely from notes received from our agricultural explorers, foreign correspondents, cooperators and others relative to the more important plants which have been received recently by the Office of Foreign Seed and Plant Introduction of the Department of Agriculture. In it are also contained accounts of the behavior in America of plants previously introduced.

Descriptions which appear here are revised and published later in the Inventory of Seeds and Plants Imported.

Applications from Experimenters for plants or seeds described in these pages may be made to this Office at any time. As they are received requests are placed on file, and when the seeds or plants requested are ready for Experimenters, they are sent to those who seem best situated and best prepared to care for them.

However, not all the plants described herein are available. Some of them on arrival are sent direct to Experimenters or to specialists of the Department or of the State Experiment Stations. The remaining plants, with which extensive tests in this country are desired, are propagated at the Plant Introduction Gardens, and when they are ready for Experimenters they are listed in the Check Lists accompanying the ANNUAL CATALOGUE OF NEWLY INTRODUCED PLANTS, which is sent to cooperators each autumn. It is not necessary, however, to await the receipt of the catalogue should an Experimenter wish to apply for any of the plants here described.

One of the objects of the Office of Foreign Seed and Plant Introduction is to secure experimental quanities of new or rare foreign seeds or plants for plant breeders and experimenters, and every effort will be made to fill specific requests.

DAVID FAIRCHILD,
*Agricultural Explorer in Charge,*
*Office of Foreign Seed and Plant Introduction.*

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*Berberis atrocarpa* (Berberidaceae), 53629. **Barberry.** From Kew, England. Seeds presented by Sir David Prain, director, Royal Botanic Garden. An ornamental shrub, 4 to 5 feet high, with leathery evergreen leaves, shining rich green above and yellowish green beneath. The shrub is native to western Szechwan and there is no other species in that section which has such jet-black, almost globose fruits. (Adapted from Sargent, Plantae Wilsonianae, vol. 3, p. 437.)

*Boswellia serrata* (Balsameaceae), 53569. From Allahabad, United Provinces, India. Seeds collected by Dr. L. A. Kenoyer and Mr. Winfield Dudgeon, Ewing Christian College. "Collected near Manikpur, in the forests of the low Vindhya Mountains, April 21, 1920."

A large tree native to the mountains of India, with pinnate hairy leaves, racemes of small pink flowers, and smooth capsules the size of an olive. It yields a most fragrant resin known as Indian olibanum and used as an ingredient in incense and various ointments. The rough, moderately hard timber is recommended for tea boxes, and is used for fuel, for making charcoal, and in the manufacture of doors, bowls, etc. The tree enjoys a considerable immunity from being browsed or lopped for fodder owing to its resinous leaves, and has a great capability for withstanding forest fires. It is thus valuable in the reclothing of dry hills. (Adapted from Transactions of the Asiatic Society in Bengal, vol. 9, p. 379; and Watt, Commercial Products of India, p. 174.)

*Diospyros discolor* (Ebenaceae), 53555. **Mabolo.** From Manila, Philippine Islands. Budded seedlings presented by Mr. Adn. Hernandez, director of Agriculture, Manila Department of Agriculture and Natural Resources, through Mr. P. J. Wester, horticulturist in charge, Manila Experiment Station. "Small budded seedless **mabolos**, var. 'Manila,' from the original tree in Manila. Among the less well-known tropical fruits that are commonly propagated from seed, the **mabolo** is the first species to permanently contribute to tropical pomology a seedless fruit of greatly improved quality. During the past dry season experiments were made at Lamao that yielded very satisfactory results and it was found that

this variety is readily shield budded. The ordinary **mabolo**,- a medium-sized Philippine tree of vigorous growth and a desirable ornamental, with shining leaves, which are 5 to 10 inches long and pubescent beneath,- bears velvety, dull reddish, thin-skinned fruits 2½ to 3 inches long and 3 to 3½ inches in diameter, with whitish, firm, rather dry, sweet flesh containing 4 to 8 large seeds. Notwithstanding its size and attractive appearance it has never gained the favor of Europeans, although very popular with the natives. This seedless variety is oblate, sweet, juicy, and of good flavor, absolutely coreless and without seed. Like the banana, the entire fruit is edible, the thin skin excepted, and it is a very superior fruit. According to the owner of the trees, 80 per cent of the fruit is seedless; the remainder contain from one to three seeds." (Wester.)

*Fagraea auriculata* (Loganiaceae), 53483. From Singapore, Straits Settlements. Seeds collected by Mr. J. F. Rock, agricultural explorer. "A medium-sized tree with drooping branches and large, handsome, fleshy leaves. The snow-white, bell-shaped flowers measure from 6 to 7 inches across and 5 to 6 inches long. It is exceedingly handsome and certainly worthy of cultivation; it is, however, distinctly tropical, being native to the Malay Peninsula. Collected at Singapore, March, 1921." (Rock.)

*Gardenia latifolia* (Rubiaceae), 53577. From Allahabad, United Provinces, India. Seeds collected by Dr. L. A. Kenoyer and Mr. Winfield Dudgeon, Ewing Christian College. "Collected near Manikpur, in the forests of the low Vindhya Mountains, April 21, 1920."

A small tree 30 feet high, with a rounded head of dark green glossy leaves. The large, fragrant flowers are white, turning yellow in the evening; the corolla tube is 2 to 3 inches long. The grayish, or speckled greenish-yellow fruits are 1 to 2 inches in diameter. The white wood has a yellowish tinge, is close and fine grained, easily worked and durable; combs are made of it, and it has been recommended for engraving and turner's work. Common in dry places in India, except in the west. (Adapted from Brandis, Forest Flora of India, p. 271.)

**A FIELD OF THE TUBEROUS COLEUS IN SINGAPORE.**

(*Coleus rotundifolius* (Poir.) Cheval. and Perr., S. P. I. No. 51768.)

This plant seemingly outyields the potato, over 15 tons of tubers per acre having been reported from Guadeloupe (Revue Cult. Col. 10:273, 1902). However, according to the Kew Bulletin, Add. ser. IX, p. 532, there is very considerable variation in yield, due apparently as much to the variety of plant as to the cultural conditions. (Photographed by J. F. Rock, Singapore, Straits Settlements, September, 1920; P22601FS.)

**A PLANT OF THE EDIBLE COLEUS, SHOWING THE POTATOLIKE TUBERS.**

(*Coleus rotundifolius* (Poir.) Cheval. and Perr., S. P. I. No. 51768.)

This plant is cultivated in the Malay Peninsula, Ceylon, and in parts of Africa for its edible tubers. In Ceylon they are said to be regarded as superior in flavor to potatoes and fetch a higher price in the local markets. Chevalier notes three well-marked varieties under cultivation in Africa. (Photographed by J. F. Rock, Singapore, Straits Settlements, September, 1920; P22622FS.)

*Iris bulleyana* (Iridaceae), 53703. From Kew, England. Seeds presented by Sir David Prain, director, Royal Botanic Garden. A fine western Chinese iris like *Iris clarkei*, with a hollow, unbranched stem. The narrow leaves are glossy above and glaucous beneath. The stem, 15 to 18 inches long, bears a single head of 1 to 2 flowers. The falls have a greenish yellow, oblong haft veined and dotted with purple. On the obovate blade the coloring becomes clearer and consists of broken veins and blotches of bright blue-purple on a creamy ground. The extremity is a uniform blue-purple, paler at the edges. The oblanceolate, channeled standards are pale blue-purple with deeper veins, and diverge at an angle of about 60°. The keeled, dark purple styles are held high above the falls. (Adapted from Dykes, The Genus Iris, p. 30.)

*Iris forrestii* (Iridaceae), 53705. From Kew, England. Seeds presented by Sir David Prain, director, Royal Botanic Garden. A most pleasing iris, like a dwarf *Iris wilsoni*, from which it differs in the less glaucous leaves, clearer yellow, unveined flowers, and upright and not spreading standards. The stem, 12 to 18 inches high, bears a single head of two flowers, although a lateral one-flowered branch sometimes develops. The short haft of the falls bears two central lines and broken lateral veins of brown-purple on a clear yellow ground; the oblong, ovate blade is often very long and drooping, of a clear lemon-yellow color which becomes deeper around the end of the style branches and is there marked with brown-purple veins. The oblanceolate yellow blade of the standards narrows to a deeply channeled haft, yellow, shorter than the falls, and slightly divergent. The broad, short-keeled, deep yellow styles, often discolored with purple, curve down on to the falls. Native to open mountain pastures on the eastern flank of the Lichiang Range in northwestern Yunnan, China, at altitudes of 12,000 to 13,000 feet. (Adapted from Dykes, The Genus Iris, p. 27.)

*Justicia adhatoda* (Acanthaceae), 53580. From Allahabad, United Provinces, India. Seeds collected by Dr. L. A. Kenoyer and Mr. Winfield Dudgeon, Ewing Christian College. "A small survival shrub characteristic to the thorn scrub of peninsular

India, and a woody ruderal in overpopulated areas throughout India. It is a pioneer in monsoon deciduous forests and common up to 4,500 feet in the Himalayas. Collected at Dharassu, Himalayan Ganges Valley, June 1, 1920, in the Bauhinia forest range. Suitable to a climate about like that of Virginia."

A glabrous shrub 4 to 8 feet high, native to India, with white flowers which are streaked and dotted with pink and are 1 to 3 inches long. (Adapted from Collett, Flora Simlensis, p. 376.)

*Rubus macraei* (Rosaceae), 53481, 53482, and 53625. **Raspberry**. From Hawaii. Seeds collected by Mr. J. F. Rock, agricultural explorer.

53481. "(Mauna Kea, May, 1921.) A selected *red variety* of the Hawaiian giant raspberry, occurring at an altitude of about 6,000 feet. It is an erect bush with the older branches thornless. The fruits, borne at the drooping tips of the branches, are very numerous, over 2 inches in diameter, and exceedingly juicy; the seeds are comparatively small; the flesh is slightly bitter, but otherwise delicious. This berry is of great promise as it grows in a region where frost is not uncommon in the winter months: it would grow well in the Sequoia regions of the Pacific coast." (Rock.)

53482. "(Mauna Kea, May, 1921.) This selected *yellow variety* is spiny, but the orange-yellow fruits are even larger than those of the red variety (which are over 2 inches in diameter), and sweet instead of bitter." (Rock.)

53625. "(Kilauea, May, 1921.) A *spineless variety* from near Shipman Ranch. This variety grows epiphytically in the forks of large Koa trees (*Acacia koa*) and on fallen logs of the same species, inaccessible to cattle. The dark red fruits attain a diameter of nearly 2 inches, are very juicy, and, though slightly bitter, are quite pleasant to the taste. The variety would likely improve under cultivation. The canes do not grow as straight as those of the yellow and red varieties on Mauna Kea, but they are over an inch in diameter at the base; the whip-like branches are very scandent and rambling. These seeds came from a fern forest at an altitude of 4,500 feet." (Rock.)

*Styphelia grayana* (Epacridaceae), 53478. From Mauna Kea, Hawaii. Seeds collected by Mr. J. F.

Rock, agricultural explorer. "An exceedingly handsome shrub closely allied to the heath family. It is loaded nearly all the year with white, pink, or red berries, making an exceptionally showy appearance. The shrub grows at altitudes of 10,000 to 11,000 feet on the slopes of Mauna Kea, Mauna Loa, and Haleakala, Hawaiian Islands. Worthy of cultivation as an ornamental garden plant. Collected on Mauna Kea, Hawaii, at an altitude of 10,000 feet, May, 1921." (Rock.)

*Vaccinium meyenianum* (Vacciniaceae), 53488. From Hawaii. Seeds collected by Mr. J. F. Rock, agricultural explorer. "Collected near Kilauea, Volcano House forests, Hawaii, April 12, 1921. A shrub 15 feet in height, native to the mountains of Hawaii, related to the ohelo berry (*Vaccinium reticulatum*), and covered with bright, cherrylike berries which are brilliant red for several months in the year. It grows at an altitude of about 4,000 to 5,000 feet, and is especially abundant about the region of the volcano of Kilauea. The berry is less well known than the ohelo berry. Owing to the bright red color of the berries they have been avoided for fear of their being poisonous. They are much juicier than the ohelo berries, but are slightly bitter; some, however, are sweet and delicious. The plant is peculiar to the Hawaiian Islands." (Rock.)

*Ziziphus xylopyrus* (Rhamnaceae), 53593. From Allahabad, United Provinces, India. Seeds collected by Dr. L. A. Kenoyer and Mr. Winfield Dudgeon, Ewing Christian College. "A small thorny tree which is characteristic to the thorn forests that precede the monsoon deciduous forests of peninsular India. Collected at Shivpuri (Sipri), Gwalior State, India, April 2, 1921."

A straggling shrub or, in favorable situations, a tree, with glabrous leaves covered beneath with white or yellowish tomentum. The stipular prickles are frequently absent. The yellowish-white to brownish wood is hard and tough, easily worked, and durable, and used for cart-building and other purposes. The bark is used for tanning; the young shoots, leaves, and fruits serve as fodder for cattle and goats. The hard dry fruit is charred and makes a black dye for leather. The edible kernels are inclosed, 2 to 3, in a large thick hard stone.

(Adapted from Cooke, Flora of Bombay, vol. 1, p. 242; and Brandis, Forest Flora of India, p. 90.)

**Notes on Behavior of Previous Introductions.**

Mr. C. C. Shooter, Earleton, Fla., writes May 16, 1921:

"The chayote (*Chayota edulis*) had a lot of fruit last fall and was uninjured by the frost during the winter. It now covers a big trellis. It is the most wonderful producer of anything I ever saw and is literally covered with fruit. I have only two vines and we cannot consume the fruits or give them away fast enough."

Mr. Alfred C. Weed, Chicago, Ill., writes August 8, 1921:

"The plant of *Actinidia chinensis* (S. P. I. No. 41401) which was sent me some years ago has made good growth and promises to be a very desirable shade vine. It has not yet blossomed.

"The *Morus nigra*, variety 'Shatoot,' S. P. I. No. 30330, has blossomed every year including the season it was received, but has set no fruit. This summer I budded it into a tree of Russian mulberry. The buds seemed to take well and I hope it may live over winter and fruit there."

Mrs. Wilhelmine Seliger, Hartford, Conn., August 18, 1921, reports as follows:

"In response to your inquiry regarding blight on the Chinese pear (*Pyrus sp.*, S. P. I. No. 26487) I am very much pleased at being able to say that the closest inspection of my tree shows absolutely no sign of disease. The main stem and all the branches are of slender growth,- the tree is now in its third year.

"My best Chinese chestnut (*Castanea mollissima* S. P. I. No. 39721) is four years old and is also perfectly healthy. It is 7½ feet high, with a stem 5½ inches around at the base and 22 inches high before the branches begin to make an open, spreading head. It has not yet borne fruit."

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
BUREAU OF PLANT INDUSTRY
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